

Gas infrastructure - Pipelines for maximum operating pressure up to and including 16 bar - Part 5: Service lines - Specific functional requirements

This document is a preview generated by EVS

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 12007-5:2014 sisaldab Euroopa standardi EN 12007-5:2014 inglisekeelset teksti.	This Estonian standard EVS-EN 12007-5:2014 consists of the English text of the European standard EN 12007-5:2014.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 02.04.2014.	Date of Availability of the European standard is 02.04.2014.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 23.040.01

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Aru 10, 10317 Tallinn, Eesti; www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:
Aru 10, 10317 Tallinn, Estonia; www.evs.ee; phone 605 5050; e-mail info@evs.ee

ICS 23.040.01

English Version

Gas infrastructure - Pipelines for maximum operating pressure up to and including 16 bar - Part 5: Service lines - Specific functional requirements

Infrastructures gazières - Canalisations pour pression maximale de service inférieure ou égale à 16 bar - Partie 5: Branchements - Recommandations fonctionnelles spécifiques

Gasinfrastruktur - Rohrleitungen mit einem maximal zulässigen Betriebsdruck bis einschließlich 16 bar - Teil 5: Hausanschlussleitungen - Spezifische funktionale Anforderungen

This European Standard was approved by CEN on 8 February 2014.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents	Page
Introduction	5
1 Scope	6
2 Normative references	7
3 Terms and definitions	8
3.1 General terminology	8
3.2 Pressure related terminology	10
4 Design	10
4.1 General	10
4.2 Protection	11
4.3 Materials and components	12
4.3.1 General	12
4.3.2 Isolation valve	12
4.3.3 Flow limiting device	13
4.3.4 Venting devices	13
4.3.5 Regulators and meters	13
4.4 Service line routing	13
4.4.1 External routing	13
4.4.2 Wall and floor transition	13
4.4.3 Internal routing	14
4.5 Pipe sizing	15
4.6 Identification	15
5 Construction	15
5.1 General	15
5.2 Storage, handling and transportation	16
5.3 Service line installation	16
5.4 Connections to existing gas infrastructure	17
6 Quality control	17
6.1 Quality management system	17
6.2 Inspection prior to installation	17
6.3 Inspection during installation	17
6.3.1 Ground conditions	17
6.3.2 Joint integrity	18
6.4 Competence	18
7 Pressure testing	18
7.1 General	18
7.2 Safety during pressure testing	19
7.3 Prior to testing	19
7.4 Test mediums	19
7.5 Measurement equipment	19
7.6 Strength test	19
7.7 Tightness test	20
7.8 Failed pressure test	20
8 Commissioning and decommissioning	21
8.1 General	21
8.2 Purging	21
9 Operation and maintenance	21
9.1 General	21

9.2	Record system and traceability	22
Annex A	(normative) Jointing methods.....	23
A.1	General	23
A.2	Threaded joints.....	23
A.3	Fusion, welded, brazed and soldered joints.....	23
A.4	Mechanical joints.....	23
A.5	Pressed joints	23
A.5.1	General	23
A.5.2	Pressed joints for copper pipe.....	24
	Bibliography.....	25

This document is a preview generated by EVS

Foreword

This document (EN 12007-5:2014) has been prepared by Technical Committee CEN/TC 234 "Gas infrastructure", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2014 and conflicting national standards shall be withdrawn at the latest by October 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

This European Standard is part of the series EN 12007 "Gas infrastructure — Pipelines for maximum operating pressure up to and including 16 bar" which comprises the following parts:

- *Part 1 General functional requirements;*
- *Part 2 Specific functional requirements for polyethylene (MOP up to and including 10 bar);*
- *Part 3 Specific functional requirements for steel;*
- *Part 4 Specific functional requirements for renovation;*
- *Part 5 Specific functional recommendations of new service lines.*

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This European Standard describes the general functional requirements for gas supply through service line pipe systems and covers the pressure range up to and including 16 bar maximum operating pressure (MOP). It gives normative and informative references for safe and secure gas infrastructures. It applies to their design, construction, operation and the related aspects of safety, environment and public health, all in order to provide a safe and secure supply of gas.

This European Standard is intended to be used in addition to the EN 12007 series of European Standards.

The requirements of this European Standard are based on safe gas engineering practice under conditions normally encountered in the gas industry. Requirements for all unusual conditions cannot be specifically provided for, nor are all engineering and construction details prescribed.

Existing industrial safety regulations applying to work areas, safety devices and safe work practices are not intended to be supplanted by this European Standard.

Persons responsible for the design, construction and operation of gas infrastructures should have regard to the guidance given in this European Standard, the EN 12007 series of European Standards and to other relevant standards. It is the responsibility of these persons to apply these functional requirements, supplemented with other proven good practice to the particular circumstances of each gas infrastructure.

The recommendations in this European Standard are intended to be applied by competent persons who have suitable knowledge and experience. Notes in the text are informative.

The designer, constructor or operator of service line and pipeline systems is cautioned that this European Standard is not a design handbook or code of practice. Additional national or company standards describing the details are needed. These detailed standards should be in line with the basic principles of this European Standard.

All pressures are gauge pressure unless stated otherwise.

In preparing this European Standard it was recognised that the suite of relevant European Standards is incomplete. Reference may be made where appropriate to international, national or other standards until relevant European Standards are available.

1 Scope

This European Standard describes the specific functional requirements for service lines in addition to the general functional requirements of EN 12007-1 for:

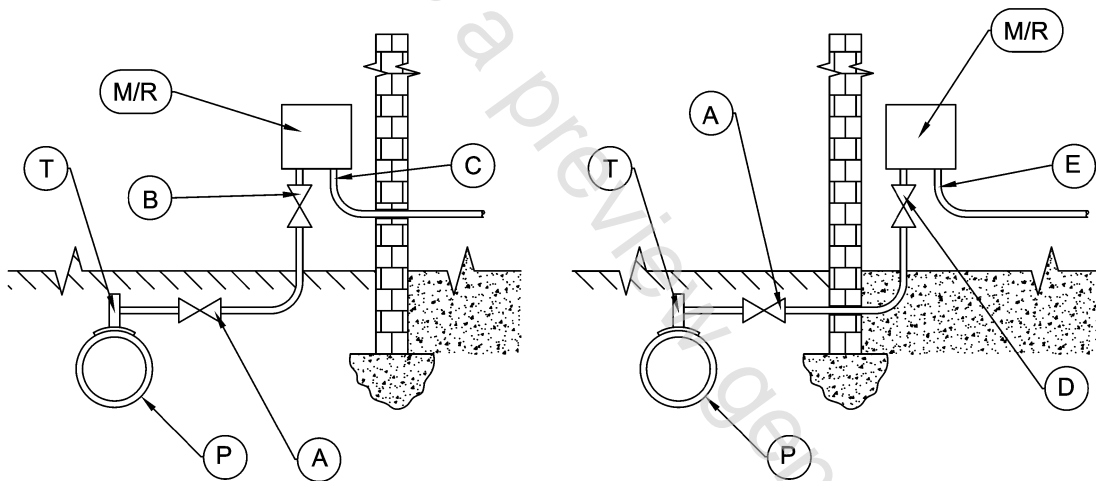
- a maximum operating pressure (MOP) up to and including 16 bar;
- an operating temperature between $-20\text{ }^{\circ}\text{C}$ and $+40\text{ }^{\circ}\text{C}$.

It applies to their design, construction, commissioning, decommissioning, operation, maintenance, extension and other associated works. The service line is the physical asset comprising of pipework from the gas main branch saddle or top tee to the outlet of the distribution system operator's nominated point(s) of delivery (for example: isolation valve, regulator, meter connection or combination of regulator and isolation valve).

The ownership and operation responsibility can vary between member states. The extent of the service line can differ in each member state. To illustrate this, the various points of deliveries are indicated in Figure 1. Consult Figure 1 (A/B/C/D/E) and member state regulations and standards.

NOTE The valve at point A is not necessarily utilised by each member state.

National preference for points of deliveries should be stated in the national foreword.



Key

P gas main
T Top Tee / Branch Saddle
M/R Meter and/or Regulator

Distribution system operator nominated Point(s) of Delivery:

A outlet of below ground service line valve outside the building
B outlet of above ground service line valve outside the building
C outlet of meter/regulator outside the building
D outlet of above ground service line valve inside the building
E outlet of meter/regulator inside the building

Figure 1 — Distribution system operator nominated point of delivery

Specific functional requirements for:

- polyethylene pipelines are given in EN 12007-2.
- steel pipelines are given in EN 12007-3.
- pipework for buildings are given in EN 1775.

- pressure regulating installations are given in EN 12279 or EN 12186.
- pressure testing, commissioning and decommissioning are given in EN 12327.

This European Standard represents the recommendations at the time of its preparation. It does not apply retrospectively to installations before the publication date unless specifically stated.

This European Standard specifies common basic principles for gas infrastructure. Users of this European Standard should be aware that more detailed national standards and/or code of practice may exist in the CEN member countries. This European Standard is intended to be applied in association with these national standards and/or codes of practice setting out the above-mentioned basic principles.

In the event of conflicts in terms of more restrictive requirements in national legislation/regulation with the requirements of this European Standard, the national legislation/regulation takes precedence as illustrated in CEN/TR 13737 (all parts).

CEN/TR 13737 (all parts) gives:

- clarification of all legislations/regulations applicable in a member state;
- if appropriate, more restrictive national requirements;
- a national contact point for the latest information.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 751-1, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water - Part 1: Anaerobic jointing compounds*

EN 751-2, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water - Part 2: Non-hardening jointing compounds*

EN 751-3, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water - Part 3: Unsintered PTFE tapes.*

EN 1057, *Copper and copper alloys - Seamless, round copper tubes for water and gas in sanitary and heating applications*

EN 1254 (all parts), *Copper and copper alloys — Plumbing fittings*

EN 1775:2007, *Gas supply - Gas pipework for buildings - Maximum operating pressure less than or equal to 5 bar - Functional recommendations*

EN 1776, *Gas supply systems - Natural gas measuring stations - Functional requirements*

EN 10226-1, *Pipe threads where pressure tight joints are made on the threads - Part 1: Taper external threads and parallel internal threads - Dimensions, tolerances and designation*

EN 10226-2, *Pipe threads where pressure tight joints are made on the threads - Part 2: Taper external threads and taper internal threads - Dimensions, tolerances and designation*

EN 10241, *Steel threaded pipe fittings*

EN 10242, *Threaded pipe fitting in malleable cast iron*

EN 12007-1:2012, *Gas infrastructure - Pipelines for maximum operating pressure up to and including 16 bar - Part 1: General functional requirements*

EN 12007-2:2012, *Gas infrastructure - Pipelines for maximum operating pressure up to and including 16 bar - Part 2: Specific functional requirements for polyethylene (MOP up to and including 10 bar)*

EN 12007-3, *Gas infrastructure - Pipelines for maximum operating pressure up to and including 16 bar - Part 3: Specific functional recommendations for steel*

EN 12186, *Gas supply systems - Gas pressure regulating stations for transmission and distribution - Functional requirements*

EN 12279, *Gas supply systems - Gas pressure regulating installations on service lines - Functional requirements*

EN 12327, *Gas infrastructure - Pressure testing, commissioning and decommissioning procedures - Functional requirements*

3 Terms and definitions

3.1 General terminology

For the purposes of this document, the following terms and definitions apply.

3.1.1

gas infrastructure

pipeline systems including pipework and their associated stations or plants for the transmission and distribution of gas

3.1.2

gas main

pipework in a gas infrastructure to which service lines are connected

3.1.3

service line

pipework from the gas main to the point of delivery of the gas into the installation pipework

3.1.4

casing

protection by means of a construction around the pipeline in order to prevent external loads, or third party interference

3.1.5

sleeve

protective pipe through which a gas pipe passes

3.1.6

point of delivery

point of a gas network where the gas is transferred to the user

Note 1 to entry: This can be at a means of isolation (e.g. at the outlet of a LPG storage vessel) or at a meter connection.

Note 2 to entry: For this European Standard, the point of delivery is typically nominated by the distribution system operator and can be defined in National Regulations or Codes of Practice, see Figure 1.